

## REMARKS/ARGUMENTS

In the Final Office Action mailed August 26, 2008, claims 1 and 4-9 were rejected. Additionally, the specification was objected to. In response, Applicant proposes amending claims 1, 6, and 8 and the specification, canceling claim 7, and adding claims 10-23. Applicant respectfully requests that the amendments be entered to put the claims in condition for allowance or to put the claims in better condition for appeal. Applicant hereby requests reconsideration of the application in view of the proposed amendments and the below-provided remarks.

### Objections to the Specification

The Office Action suggests adding subheadings to the specification. As such headings are not required and have in the past been known to affect the scope of protection afforded, Applicant respectfully declines.

The Office Action also states that the term “I2C” at page 5, lines 12, 14, and 18, should be replaced with the term “I<sup>2</sup>C.” In response, Applicant proposes amending the specification to replace the term “I2C” at page 5, lines 12, 14, and 18 with the term “I<sup>2</sup>C.”

The Office Action also states that the reference labels in Figure 4 (48, 50, 52, PESW) need corresponding descriptions. In response, Applicant respectfully submits that Fig. 4 is a schematic circuit diagram of a second switch used in Fig. 2, see page 7 line 3 of the original specification. The corresponding description of Fig. 4 (48, 50, 52, PESW) can be found in the original specification with regard to Fig. 2, for example, at page 5 lines 21 to 22 and 30 to 34.

The Office Action also states that the specification needs to provide a corresponding description stating that the “second switch” is “an integrated circuit”. In response, the description stating that the “second switch” is “an integrated circuit” can be found, for example, at page 7 line 4 of the original specification.

### Claim Rejections under 35 U.S.C. 112

Claims 1 and 4-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. With regard to the rejection of claim 1, Applicant proposes amending claim 1 to recite “where in each state the insertion loss between one branch port and the common port is low and the insertion loss between any other branch port and the common port is high.” Support for the proposed amendment can be found in Applicant’s specification at, for example, page 6 lines 8 to lines 22. With regard to the rejection of claim 8, Applicant proposes amending claim 8 to replace the term “I<sup>2</sup>C” with the term “I<sup>2</sup>C.” Applicant respectfully submits that claims 1, 4-6, and 8-9 particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### Claim Rejections under 35 U.S.C. 103

Claims 1 and 4-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Heckaman et al. (U.S. Pat. No. 5,272,457, hereinafter Heckaman) in view of Even-or (U.S. Pat. No. 5,212,408, hereinafter Even-or.) Additionally, claims 8 and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Heckaman in view of Even-or and further in view of Atokawa et al. (U.S. Pat. No. 6,970,056, hereinafter Atokawa.) However, Applicant respectfully submits that these claims are patentable over Heckaman, Even-or, and Atokawa for the reasons provided below.

#### Independent Claim 1

Applicant proposes amend claim 1 to include the limitations of claim 7 and to recite that “the in-phase voltage signal and the inverted voltage signal are generated from a signal provided at the control terminal.” Support for the proposed amendment can be found in Applicant’s specification at, for example, original claim 7, Fig. 5, and page 7 lines 9-18. Applicant proposes canceling claim 7. As proposed, claim 1 recites:

“A switch circuit comprising:  
at least two input terminals and one output terminal,  
first switches, each first switch comprising a first and second port, said  
first switches being electronically switchable between a first state, where  
there is a high insertion loss between the corresponding first and second  
ports, and a second state, where there is a low insertion loss between the  
corresponding first and second ports, where each of the input terminals is  
connected to a first port of a respective one of said first switches,

a second switch with at least two branch ports and a common port coupled to said output terminal, said second switch electronically switchable between different states, where in each state the insertion loss between one branch port and the common port is low and the insertion loss between any other branch port and the common port is high, where each of the branch ports is connected to a second port of one of said first switches; and

a control circuit comprising a control terminal, a first driver circuit and a second driver circuit, where the first driver circuit and the second driver circuit are operably connected to the control terminal, the first driver circuit provides an in-phase voltage signal to drive one of the first switches, and where the second driver circuit provides an inverted voltage signal to drive another of the first switches, wherein the in-phase voltage signal and the inverted voltage signal are generated from a signal provided at the control terminal,

wherein said first switches are each implemented using two anti-parallel PIN-diodes in series connection between first and second ports, and a driver terminal is connected between the diodes." (emphasis added).

Heckaman teaches that bias voltages are applied to SPST modules (20) and (22), see column 5, lines 64 to column 6, lines 2. However, Heckaman does not teach that "the in-phase voltage signal and the inverted voltage signal are generated from a signal provided at the control terminal," as recited in amended claim 1. Even-or teaches that circuits (12, 14, 18, 20, 22) connect the ends of two series connected diodes, see column 3, lines 43-46. However, Even-or does not teach that "the in-phase voltage signal and the inverted voltage signal are generated from a signal provided at the control terminal," as recited in amended claim 1. Accordingly, Applicant respectfully submits that amended claim 1 is patentable over the combination of Heckaman and Even-or because the combination of cited references does not teach or suggest all of the limitations of the claim.

#### Dependent Claims 4-6 and 8-9

Claims 4-6 and 8-9 are dependent on claim 1. Applicant respectfully asserts that claims 4-6 and 8-9 are allowable at least based on an allowable claim 1.

#### Independent Claim 10

Applicant proposes adding new claim 10, which includes limitations of claims 1 and 9, the limitation "the tuner circuit includes an I<sup>2</sup>C transceiver", and the limitation "the

I<sup>2</sup>C transceiver receives commands via an I<sup>2</sup>C bus and controls the switch circuit.”

Although new claim 10 is similar to claim 1, new claim 10 does not include the limitations “wherein said first switches are each implemented using two anti-parallel PIN-diodes in series connection between first and second ports, and a driver terminal is connected between the diodes” as in claim 1. Support for new claim 10 can be found in Applicant’s specification at, for example, original claim 1, original claim 9, Fig. 2, and page 5 lines 12-22.

Atokawa teaches a reception filter (3) and a change-over switch (4). However, Atokawa does not teach that the reception filter (3) includes an I<sup>2</sup>C transceiver and the I<sup>2</sup>C transceiver receives commands via an I<sup>2</sup>C bus and controls the change-over switch (4). Accordingly, Applicant respectfully submits that new claim 10 is patentable over the combination of Heckaman, Even-or, and Atokawa because the combination of cited references does not teach or suggest all of the limitations of the claim.

#### Dependent Claims 11-16

Applicant proposes adding new claims 11-16. Support for new claims 11-16 can be found in Applicant’ specification at, for example, original claims 1-7. New claims 11-16 are dependent on claim 10. Applicant respectfully asserts that new claims 11-16 are allowable at least based on an allowable claim 10.

#### Independent Claim 17

Applicant proposes adding claim 17, which includes the limitations of claims 1 and the limitation “a control circuit comprising a control terminal, a first driver circuit, a second driver circuit, and a third driver circuit, where the first driver circuit provides an in-phase voltage signal to drive one of the first switches, where the second driver circuit provides an inverted voltage signal to drive another of the first switches, wherein the in-phase voltage signal and the inverted voltage signal are generated from a signal provided at the control terminal, and where the third driver circuit provides a switching voltage signal to drive the second switch, wherein the third driver circuit is a resistive divider network and the switching voltage signal is obtained from the in-phase voltage signal.”

Although new claim 17 is similar to claim 1, new claim 17 does not include the

limitations “wherein said first switches are each implemented using two anti-parallel PIN-diodes in series connection between first and second ports, and a driver terminal is connected between the diodes” as in claim 1. Although new claim 17 is similar to claim 7, new claim 17 does not include the limitations “where the first driver circuit and the second driver circuit are operably connected to the control terminal” as in claim 7. Support for new claim 17 can be found in Applicant’s specification at, for example, original claims 1 and 7, Fig. 2 and page 5 lines 21-22, and Fig. 5 and page 7 lines 12-13 and 17-18.

Heckaman teaches that bias voltages are applied to SPST modules (20) and (22), see column 5, lines 64 to column 6, lines 2. Even-or teaches that circuits (12, 14, 18, 20, 22) connect the ends of two series connected diodes, see column 3, lines 43-46. However, Heckaman and Even-or do not teach that “the third driver circuit provides a switching voltage signal to drive the second switch, wherein the third driver circuit is a resistive divider network and the switching voltage signal is obtained from the in-phase voltage signal” as recited in new claim 17. Accordingly, Applicant respectfully submits that new claim 17 is patentable over the combination of Heckaman and Even-or because the combination of cited references does not teach or suggest all of the limitations of the claim.

#### Dependent Claims 18-23

Applicant proposes adding new claims 18-23. Support for new claims 18-23 can be found in Applicant’ specification at, for example, original claims 1-6 and 8-9. New claims 18-23 are dependent on claim 17. Applicant respectfully asserts that new claims 18-23 are allowable at least based on an allowable claim 17.

## CONCLUSION

Applicant respectfully requests reconsideration of the claims in view of the proposed amendments and remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

/mark a. wilson/

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Mark A. Wilson  
Reg. No. 43,994

Wilson & Ham  
PMB: 348  
2530 Berryessa Road  
San Jose, CA 95132  
Phone: (925) 249-1300  
Fax: (925) 249-0111